

REMARKS

In the October 1, 2004 Office Action, claims 2-10 and claims 12-20 were objected to as being dependent upon rejected base claims, but were indicated to be allowable if rewritten in independent form including the limitations of the base claims and any intervening claims. Applicants reserve the right to amend claims 2-10 and 12-20 to pursue the subject matter of claims 2-10 and 12-20 should the present Reply not be considered to place the application in condition for allowance.

In the Office Action, claims 1 and 11 were rejected under 35 U.S.C. 102(b) as being anticipated by Soneda United States patent No. 4,858,195 (hereinafter "Soneda"). These rejections are respectfully traversed.

As applicants explain on pages 1 and 2 of their specification, the threshold voltages of metal-oxide-semiconductor (MOS) transistors change with age. These threshold voltage changes can create significant variations in the performance of the MOS transistors. The variations in MOS transistor performance can adversely affect an integrated circuit in which the MOS transistors are being used. If significant enough, the integrated circuit may be rendered inoperable.

Applicants' invention addresses these concerns. In particular, as applicants explain in the paragraph bridging pages 2 and 3 of their specification, applicants' approach involves measuring changes in transistor threshold voltage that may affect circuit performance. Power supply adjustments are made to compensate for the effects of the measured changes.

Claims 1 and 11 are directed to these aspects of applicants' invention.

In particular, claim 1 is directed to an integrated circuit having a circuit that has metal-oxide-semiconductor transistors with threshold voltages that change with age. The metal-oxide-semiconductor transistors are powered by a power supply voltage. The integrated circuit of claim 1 also has monitoring and compensation circuitry. The monitoring and compensation circuitry measures the threshold voltage changes in the metal-oxide-semiconductor transistors and compensates for the threshold voltage changes by adjusting the power supply voltage.

Claim 11 is directed to a method for compensating an integrated circuit for threshold voltage changes due to age. The method of claim 11 involves monitoring the threshold voltage changes and adjusting at least one power supply voltage on the integrated circuit to compensate for the threshold voltage changes.

The circuitry and methods of the Soneda patent do not show or suggest the features of claims 1 and 11. As shown in FIG. 5 of Soneda and as described in the Soneda patent (e.g., at column 1, line 55 to column 2, lines 42 and column 6, lines 66 to column 7, lines 11), the Soneda patent describes a sense amplifier circuit that is insensitive to divergence in the threshold voltages in a pair of its MOS transistors. This insensitivity to threshold voltage changes is accomplished by providing the sense amplifier circuit with capacitors C1 and C2. During operation of the sense amplifier, the capacitors are precharged using switching elements S. The precharging of the capacitors places a charge on the capacitors that is partly dependent on the threshold voltages of the transistors and that therefore compensates the sense amplifier for the divergence of the threshold voltages.

Nowhere in Soneda is any mention made of monitoring and compensation circuitry that measures threshold voltage changes in Soneda's metal-oxide-semiconductor transistors as defined by claim 1, let alone monitoring and compensation circuitry that compensates for threshold voltage changes by adjusting Soneda's power supply voltage. There is also nothing in Soneda that involves monitoring threshold voltage changes as defined by method claim 11, let alone adjusting at least one

power supply voltage on Soneda's integrated circuit to compensate for the threshold voltage changes.

Soneda's sense amplifier is designed to be tolerant to certain types of threshold voltage changes, so Soneda is not concerned with either monitoring these changes or making any power supply adjustments to compensate for these changes.

Soneda does not show or suggest applicants' claimed arrangements for compensating for threshold voltage changes by making power supply adjustments, because Soneda's sense amplifier has compensating capacitors C1 and switches S.

Claims 1 and 11 are directed to approaches in which threshold voltage changes are measured and power supply adjustments are made to compensate accordingly. Soneda makes no mention of any power supply adjustments, let alone adjustments based on measured threshold voltages changes. Claims 1 and 11 are therefore not anticipated by Soneda.

The foregoing demonstrates that claims 1 and 11 are in condition for allowance. Claims 2-10 and 12-20 are allowable because they depend from claims 1 and 11. This application is

therefore in condition for allowance. Reconsideration of this patent application and allowance are respectfully requested.

Respectfully submitted,

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G. Victor Trezz

Reg. No. 36,294

Attorney for Applicants

Customer No. 45851